ABSTRACT OF THE INVENTION

A system and method that enables network quality of service to be based on qualitative factors. RSVP signaling is extended to allow RSVP messages to be identified as qualitative, and to pass qualitative information with the messages. RSVP-aware network devices such as routers in the message path analyze the qualitative information and apply policy based thereon to perform admission control and allocation of resources based on qualitative factors. An application identifier is provided, along with a sub-application identifier that provides fine-grained qualitative information, such as to identify what type of network service an application is requesting. Qualitative signaling may employ RSVP integrated with differentiated services by returning a DCLASS object in an RSVP message, to assign an application's traffic to one or more aggregate classes based on a policy evaluation, which may use qualitative factors against policy for each request. For admitted requests, the application's host machine or an upstream sender may mark the packets with the appropriate aggregate classification information, whereby packets are then prioritized accordingly in the network.